TABLE S1. Concentration of different polymer species in versions of the model

Model version:	Isodesmic Assembly	$\varepsilon = 1x10^{-4}$	Monomer Activation + Isodesmic Assembly	Segregated Assembly of L_n and H_n	Only One End Changes Conformation
Cooperative?	No	Yes	Yes	Yes	No
Equilibrium constants					
K_C	0	$1x10^{-4}$	$1x10^{-4}$	$1x10^{-4}$	$1x10^{-4}$
K_{LL} (μM)	1	$1x10^{-4}$	0	$1x10^{-4}$	$1x10^{-4}$
K_{LH} (μM)	0	$1x10^{-4}$	0	0	$1x10^{-4}$
K_{HH} (μM)	0	$1x10^{4}$	$1x10^{4}$	$1x10^{4}$	$1x10^{4}$
K_{HL} (μM)	0	$1x10^{-4}$	0	0	$1x10^{4}$
Concentrations of polymer species at equilibrium* (μM)					
L	**$7.30x10^{-1}$**	**$9.97x10^{-1}$**	**$9.97x10^{-1}$**	**$9.97x10^{-1}$**	**$7.30x10^{-1}$**
H	0	$9.97x10^{-5}$	$9.97x10^{-5}$	$9.97x10^{-5}$	$7.30x10^{-5}$
monomer	*$7.30x10^{-1}$*	*$9.97x10^{-1}$*	*$9.97x10^{-1}$*	*$9.97x10^{-1}$*	*$7.30x10^{-1}$*
LL	**$5.33x10^{-1}$**	**$9.93x10^{-5}$**	0	**$9.93x10^{-5}$**	$5.33x10^{-5}$
HL	0	$9.93x10^{-9}$	0	0	**$5.33x10^{-1}$**
LH	0	$9.93x10^{-9}$	0	0	$5.33x10^{-9}$
HH	0	**$9.93x10^{-5}$**	**$9.93x10^{-5}$**	**$9.93x10^{-5}$**	$5.33x10^{-5}$
dimer	*$5.33x10^{-1}$*	*$1.99x10^{-4}$*	*$9.93x10^{-5}$*	*$1.99x10^{-4}$*	*$5.33x10^{-1}$*
LLL	$3.89x10^{-1}$	$9.90x10^{-9}$	0	$9.90x10^{-9}$	$3.89x10^{-9}$
HLL	0	$9.90x10^{-13}$	0	0	$3.89x10^{-5}$
LHL	0	$9.90x10^{-13}$	0	0	$3.89x10^{-5}$
LLH	0	$9.90x10^{-13}$	0	0	$3.89x10^{-13}$
HHL	0	$9.90x10^{-9}$	0	0	**$3.89x10^{-1}$**
HLH	0	$9.90x10^{-17}$	0	0	$3.89x10^{-9}$
LHH	0	$9.90x10^{-9}$	0	0	$3.89x10^{-9}$
HHH	0	**$9.90x10^{-5}$**	**$9.90x10^{-5}$**	**$9.90x10^{-5}$**	$3.89x10^{-5}$
trimer	*$3.89x10^{-1}$*	*$9.90x10^{-5}$*	*$9.90x10^{-5}$*	*$9.90x10^{-5}$*	*$3.89x10^{-1}$*
LLLL	**$2.84x10^{-1}$**	$9.87x10^{-13}$	0	$9.87x10^{-13}$	$2.84x10^{-13}$
HLLL	0	$9.87x10^{-17}$	0	0	$2.84x10^{-9}$
LHLL	0	$9.87x10^{-17}$	0	0	$2.84x10^{-9}$
LLHL	0	$9.87x10^{-17}$	0	0	$2.84x10^{-9}$
LLLH	0	$9.87x10^{-17}$	0	0	$2.84x10^{-17}$
HHLL	0	$9.87x10^{-13}$	0	0	$2.84x10^{-5}$
HLHL	0	$9.87x10^{-21}$	0	0	$2.84x10^{-5}$
HLLH	0	$9.87x10^{-21}$	0	0	$2.84x10^{-13}$
LHHL	0	$9.87x10^{-13}$	0	0	$2.84x10^{-5}$
LHLH	0	$9.87x10^{-21}$	0	0	$2.84x10^{-13}$
LLHH	0	$9.87x10^{-13}$	0	0	$2.84x10^{-13}$
LHHH	0	$9.87x10^{-9}$	0	0	$2.84x10^{-9}$
HLHH	0	$9.87x10^{-17}$	0	0	$2.84x10^{-9}$
HHLH	0	$9.87x10^{-17}$	0	0	$2.84x10^{-9}$
HHHL	0	$9.87x10^{-9}$	0	0	**$2.84x10^{-1}$**
HHHH	0	**$9.87x10^{-5}$**	**$9.87x10^{-5}$**	**$9.87x10^{-5}$**	$2.84x10^{-5}$
tetramers	*$2.84x10^{-1}$*	*$9.87x10^{-5}$*	*$9.87x10^{-5}$*	*$9.87x10^{-5}$*	*$2.8x10^{-1}$*

*Results were calculated for 10 μM total protein (z_o). In bold are the most abundant species of each length. In italics are the total concentration of polymers of each length.

Figure S1. *Determining which combination of parameters produce the greatest cooperativity.* In cooperative systems, polymer does not assemble unless the equilibrium monomer concentration has nearly reached its maximum possible value. Therefore, in a plot of p versus z_1, ideally cooperative systems will exhibit a sharp 90˚ bend upwards; the closer a curve is to this ideal, the more cooperative the system. (*A*) In cooperative systems, K_{HH} must be large and all other parameters small. The five equilibrium constants were set equal to 1, 0.1, or 10 in all combinations. For each combination of values, p and z_1 were first calculated for a range of L concentrations, then normalized by dividing by z_1^{∞}. Arrow: The greatest cooperativity is seen in the right-most trajectory, where $K_{HH} = 10$ while all other equilibrium constants = 0.1. Arrowhead: Isodesmic polymerization with all K's = 1 is in the middle of the data sets. (*B*) Nearly ideal cooperativity can be produced when equilibrium constants are varied over a wider range. Here, K_C, K_{LL}, K_{LH}, and $K_{HL} = \varepsilon$ and $K_{HH} = 1/\varepsilon$ for $\varepsilon = 1$, $1\text{x}10^{-2}$, $1\text{x}10^{-4}$, and $1\text{x}10^{-6}$. The left hand, least sharply curved line is for $\varepsilon = 1$, isodesmic polymerization. As ε decreases, polymerization approaches ideal cooperativity.